


Task Force 8. Organization of Preventive Cardiology Service

THOMAS A. PEARSON, MD, PhD, FACC, CHAIR, PATRICK E. McBRIDE, MD, MPH, NANCY HOUSTON MILLER, RN, SIDNEY C. SMITH, JR., MD, FACC

The expanding knowledge base regarding the pathophysiology, molecular biology, epidemiology and economic aspects of atherosclerotic cardiovascular disease provides a solid foundation for the development of guidelines for risk factor management. Randomized, controlled clinical trials have demonstrated the efficacy of a variety of interventions in the secondary prevention of coronary disease and in the primary prevention of disease in high risk individuals. The evidence and support of these interventions was felt sufficient to provide a consensus statement, endorsed by the American Heart Association and the American College of Cardiology, for the secondary prevention of coronary artery disease (1).

However, the development of a scientific rationale through basic and clinical studies often fails to influence clinical practice. Convincing results of randomized clinical trials and widely disseminated guidelines often fall short of implementation (2–7).

The existence of barriers to the implementation of risk reduction interventions appears obvious. Preventive services, including counseling, are provided less often than experts recommend and less frequently than patients and their physicians prefer (8). In a primary care setting, 75% of patients who smoke say they would attempt to stop smoking if their physician advised them to do so, yet only 40% to 55% report that their physician provided such advice to them (9,10). Only 45% to 65% of patients with hypercholesterolemia had evidence of treatment (3,11,12). The extent to which interventions recommended by the American College of Cardiology (1) are being carried out is poorly described. Table 1 shows estimates of the levels of risk factor management. These estimates deal only with initiation of any risk factor management; levels of adequacy of risk factor control could likely be much worse. Barriers that prevent these efficacious and cost-effective interventions from being deployed could be targeted as a way to correct deficiencies in levels of risk factor management. The objective of this task force report is to identify barriers within health care organizations which impede the provision of preventive services. Health care organizations under consideration range from primary care and cardiovascular specialty practices to hospitals, managed care organizations and third-party payors. Opportunities and strategies for these organizations are then identified and evaluated as to their ability to effectively, feasibly and appropriately influence the provision of preventive cardiovascular services. Finally, a list of recommendations for organizations has been developed, based on the recognized needs of patients and providers and the published evidence supportive of the efficacy of specific strategies.

Barriers to Implementation of Preventive Services: An Overview

A variety of barriers to the successful implementation of preventive services have been identified (Table 2). These include factors at the patient, provider, health care organization and community/societal levels (11,12). These different types of barriers might be considered sequential, in that any one barrier in the chain could result in a lack of provision of preventive service.

Patient factors. A detailed discussion of patient factors is beyond the scope of this task force report. Physicians frequently perceive patients as not motivated or noncompliant, yet patients consistently report preventive services as a high priority for their health care and want physicians to provide life-style and prevention recommendations. Ironically, patients cite physicians' failure to order tests, give information or communicate results as reasons not to request preventive services.
Table 1. Estimates of Levels of Risk Factor Management in Patients Surviving Myocardial Infarction

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Referral to cardiac rehabilitation program*</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Smoking cessation counseling†</td>
<td>20%</td>
</tr>
<tr>
<td>Lipid-lowering drug therapy‡</td>
<td>25%</td>
</tr>
<tr>
<td>Beta-blocker therapy†</td>
<td>40%</td>
</tr>
<tr>
<td>ACE inhibitor therapy (reduced LV ejection fraction)‡</td>
<td>60%</td>
</tr>
<tr>
<td>Aspirin†</td>
<td>70%</td>
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Table 2. Barriers to Implementation of Preventive Services

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Patient</td>
<td></td>
</tr>
<tr>
<td>Lack of knowledge and motivation</td>
<td></td>
</tr>
<tr>
<td>Lack of access to care</td>
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<tr>
<td>Cultural factors</td>
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<tr>
<td>Social factors</td>
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<tr>
<td>Physician</td>
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<tr>
<td>Problem-based focus</td>
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<tr>
<td>Feedback on prevention is negative or neutral</td>
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<tr>
<td>Time constraints</td>
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<td>Lack of incentives, including reimbursement</td>
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<tr>
<td>Lack of training</td>
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<td>Poor knowledge of benefits</td>
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<tr>
<td>Perceived ineffectiveness</td>
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<tr>
<td>Lack of skills</td>
<td></td>
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<tr>
<td>Lack of specialist-generalist communication</td>
<td></td>
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<tr>
<td>Lack of perceived legitimacy</td>
<td></td>
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<tr>
<td>Health care settings (hospitals, practices, etc.)</td>
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<tr>
<td>Acute care priority</td>
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<tr>
<td>Lack of resources and facilities</td>
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<tr>
<td>Lack of systems for preventive services</td>
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<tr>
<td>Time and economic constraints</td>
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<tr>
<td>Poor communication between specialty and primary care providers</td>
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<tr>
<td>Lack of policies and standards</td>
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<tr>
<td>Community/society</td>
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<tr>
<td>Lack of policies and standards</td>
<td></td>
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<tr>
<td>Lack of reimbursement</td>
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(8). Patient demand for service remains the most powerful determinant of whether a physician addresses a patient’s problem (8), so empowerment of patients to seek preventive services remains a viable strategy to influence physician behavior. Blaming the patient does not spare the patient’s care. Lack of optimization of patient compliance by the physician or health care organization in the final analysis only serves to reduce the effectiveness of the risk factor management. An active role for family members in the patient’s compliance cannot be overemphasized (13).

Physician barriers. Primary care physicians and cardiovascular specialists share a variety of constraints, including a fundamental focus on acute problems, coupled with limited time to carry out additional assessments and interventions other than those acutely indicated. The practicing cardiologist faces increasing time commitments to acute hospital care, interventional procedures and pressure by managed care contracts to see outpatients during shorter, highly focused visits that provide little time for preventive care. The very nature of risk factor interventions provides neutral feedback, which, in the setting of the patient’s complaint or side effects, can be negative. Finally, the immediate gratification from a patient’s improvement after an acute intervention is reinforced by better reimbursement for acute care services and procedures, in contrast to the less acute management of risk factors, which has traditionally been poorly reimbursed.

Lack of training and confidence are frequently cited as major barriers to physician use of preventive strategies (12,14,15). Physicians report general awareness of practice guidelines, but limitations in training, skills and experience prevent treatment approaches for risk factor reduction from being carried out. A recent survey of primary care physicians indicated that 69% of these physicians considered themselves confident to provide smoking cessation counseling, but only 32% felt confident about dietary counseling, and 36% felt confident using medications for cholesterol (16). Likewise, cardiologists are generally not well educated in nutrition counseling or the nuances of lipid-lowering agents (17). Most cardiology training programs do not have specialists in lipid disorders or risk factor management as members of the cardiology division, resulting in the majority of training programs in cardiology providing inadequate educational experiences in preventive cardiology. Thus, knowledge of benefit, perceived effectiveness and skills are often acknowledged by cardiovascular specialists and primary care physicians alike as barriers to the practice of risk factor reduction.

The interface between primary and specialty care of the patient with coronary disease is another area where the chain of preventive care is often disrupted. Treatment recommendations for patients hospitalized for myocardial infarction frequently do not include risk factor management recommendations provided by the cardiovascular specialist, suggesting to the generalist that these interventions are not important (18). Cardiologists and cardiac surgeons may not perceive that risk factor management is their responsibility. Some interventional cardiologists and surgeons fear loss of patient referral should they interfere with this management, which may be considered the domain of the generalist. Thus, the absence of perceived legitimacy in this area by the specialist results in the interpretation of risk reduction interventions as being irrelevant by the generalist. Clearly, the specialist and generalist need to support each other’s efforts to provide a consistent and strong recommendation for the management of risk factors. However, the cardiovascular specialist must ensure optimal care of the patient with vascular disease either by emphasizing the need for risk factor management by the primary care provider or by providing those services himself or herself.

Organizational barriers. Primary care and specialty practices, hospitals and managed care organizations may provide obstacles to even well trained, skillful physicians and their motivated patients. Although there are many barriers to the implementation of services for cardiovascular risk reduction in
primary care and specialty care settings, the hospital poses particular barriers to the provision of these services. Providing risk factor management in a hospital setting is complicated by at least three factors: 1) the environment of the hospital itself poses logistic problems; 2) no system or infrastructure exists to enable health care professionals to focus on prevention; and 3) there is a lack of reimbursement for hospital-based preventive services (see next section).

The hospital setting itself poses unique problems. Even among patients hospitalized for conditions related to risk factors, such as smoking, hypertension or hyperlipidemia, the focus of hospitalization is not on risk factor management. Rather, the focus is on the acute condition prompting the hospital admission. In addition, there is a limited amount of time during the hospital period to interact with patients because of the pressure for early hospital discharge. Patients are often in pain or undergoing multiple procedures during this period. Although most health care professionals recognize the need for education to begin within this setting, the acuity of hospital care is increasing, which renders patients less receptive and capable of internalizing information provided during the hospital period.

The second major problem within the hospital setting is the lack of infrastructure or resources, facilities, staff and system organization to allow health care professionals to focus on risk factor management. Although education is sometimes provided by multidisciplinary groups, such as physicians, nurses, nutritionists, respiratory and physical therapists and pharmacists, roles and responsibilities for providing specific content are often not well specified. To enable health care professionals to interact successfully, clear lines of communication, coordination and prioritization must be established. Lines of responsibility are often ambiguous in hospital settings when patients are seen by house staff and multiple specialists as well as, or in lieu of, the primary care providers. Staff nurses, the most numerous health care providers within this setting, focus on the management of the patient’s acute condition, not rehabilitation or risk factor management. Few nurses, physicians or other health care professionals have undergone formal training in the behavioral aspects of management that underlie risk factor modification, nor is there a standard of performance that is expected of all health care professionals. Moreover, there is a lack of appropriate, effective training materials to educate professionals in order to facilitate risk factor modification. Although numerous health education materials have been developed both commercially and through nonprofit organizations, they are oftentimes too general to be of help to patients, they are perceived as costly, and few have undergone extensive evaluation. Finally, the hospital setting does not provide for systematic follow-up of patients, which is essential to the maintenance of risk factor changes. This discontinuity in care is due to the fact that most hospital-based staff do not interact with patients and their primary care providers after hospital discharge.

External barriers. Until recently, data regarding reduction of morbidity and mortality from risk factor modification have been lacking, thereby causing cardiologists to defer its implementation (1,13). The lack of clear standards for preventive services continues to confuse generalists and specialists alike.

The lack of reimbursement for risk factor management is shared as a barrier to providing such care by primary care, outpatient cardiology and hospital-based services. Health care professionals have not traditionally been paid to provide preventive services. The financial focus on acute care rather than preventive care reduces the likelihood of designation of positions and commitment of resources and personnel by health care organizations. Ironically, funding mechanisms to support counseling by nurses and nutritionists are generally not well understood by physicians, thus these individuals are not utilized by most physicians in their practices due to perceived financial disincentives.

### Efficacy, Effectiveness and Feasibility of Strategies to Improve the Organization of Preventive Services

#### Interventions by Physicians

**Physician education programs.** The training and certification of cardiovascular specialists should include all the requirements for 1) knowledge of the pathophysiologic roles of the risk factors and the evidence from epidemiologic studies and clinical trials supporting their association with vascular disease; 2) the ability to comprehensively assess individual risk factors and overall risk; and 3) skills to modify risk factors using both nonpharmacologic and pharmacologic interventions. Current training programs may need to add these areas to their curricula to ensure organization of required information (19).

The increased role of the cardiovascular specialist may identify new manpower needs in the current climate in which specialists with procedural skills are in oversupply and in which cognitive noninvasive and risk reduction skills are being increasingly employed (19).

Although approximately $3 billion is expended yearly on continuing medical education (CME) programs in the United States, their impact on physician performance and patient outcome remains uncertain (20,21). Five characteristics of successful CME programs are 1) identification of a specific target audience and learning need, 2) clear expression of learning objectives, 3) targeting a physician’s clinical performance rather than knowledge, 4) implementation in clinical settings, and 5) ability to measure change in physician practice (21). In contrast, dissemination of information using traditional lectures, mass media and mailed material-based educational strategies has been unsuccessful (22,23). In the preventive cardiology arena, Browner et al. (24) reported that physician compliance with recommendations of the National Cholesterol Education Program Expert Panel was not improved by intensive CME. More effective educational strategies use reminders to the physician, educational sessions involving patients, outreach visits, the use of opinion leaders and multifaceted activities (22). Lamas et al. (25) demon-
strated a measurable influence of the dissemination of results of randomized clinical trials concerning the use of aspirin and calcium channel blockers on the management of patients with myocardial infarction. These results and similar reviews (26,27) support the concept that CME, when based on the results of clinically relevant, well conducted, randomized trials, rather than panel-generated guidelines, may have a significant impact on physician practice patterns. The majority of studies involving CME suggest that these efforts are frequently ineffective unless they are performed in combination with medical record audits and individualized feedback to practitioners about deviations from practice standards.

Consensus statements/clinical guidelines. During the past decade, a variety of organizations involved with health care, including professional societies, private consulting firms, governmental bodies and managed care groups, have developed guidelines and consensus statements for patient care. The basis for these guidelines and statements range from the results of large randomized, controlled trials to expert panel opinion. The impact of guidelines on patient care and outcomes remains unestablished (2). Although awareness with guidelines may be as high as 60% within 1 year of release, actual compliance may be quite low (23). In earlier studies, Brooks (28) found only 15% compliance with American Heart Association guidelines on antibiotic prophylaxis for endocarditis. In a study involving low risk patients admitted to coronary care units, compliance with guidelines for chest pain management was higher by internists (84%) than cardiologists (53%) (7). Studies demonstrate a much higher acceptance rate of guidelines by subspecialists when they are developed by their own subspecialty organizations (29). Thus, in one review (30), 80% of cardiologists showed evidence of awareness with American College of Cardiology guidelines for exercise testing in contrast with a 29% awareness with those of the American College of Physicians. Although physicians may be aware of guidelines, the ultimate impact on practice patterns is highly debated. The NIH Consensus Development Conference (31) failed to show evidence that recommendations on coronary artery bypass graft surgery affected practice patterns. Lomans et al. (32) concluded that guidelines may be effective in persuading physicians to alter their practice patterns, but without incentives or removal of disincentives, guidelines were not likely to change actual clinical practice. In a review on the effect of clinical guidelines in medical practice, Grimshaw and Russell (33) emphasized that success of guidelines is multifactorial and dependent on methods of development, dissemination and implementation. They concluded that explicit guidelines do improve clinical practice when introduced into the context of rigorous evaluations.

Finally, the importance of nonphysician parameters in the successful implementation of guidelines cannot be overemphasized. Ellrodt et al. (34) noted that physician refusal accounted for a small percentage (16%) of noncompliance with chest pain guidelines and emphasized that implementation issues, health care system inefficiency and severity of illness were the predominant reasons for physician noncompliance with these guidelines.

Performance feedback. Feedback is a mechanism by which individuals can receive information to shape and perfect their behavior through successive approximations (35). Most feedback has been centered on physician performance based on medical record audits (36) or physician knowledge assessment (37). The mechanisms of feedback include group discussion, personalized written feedback, computer-generated feedback or one-on-one discussion (36–42). In general, the more personalized the feedback, the greater the impact on physician practice (22). Feedback which also includes educational methods and pertinent information seems to add to the effectiveness. In one study (42), performance feedback exceeded a reminder system in its effectiveness in changing medical house staff cholesterol management practices in inpatients with coronary disease.

Interventions by Nurses and Other Professionals

Nursing education programs. Postgraduate education programs have increased the knowledge base of health care professionals in the area of risk factor modification, but too often these programs are not tied to a designated service role. For example, initiatives such as the National Cholesterol Education Program for Nurses have been undertaken by the American Heart Association to expand the knowledge and expertise of nurses in managing the dietary and drug aspects of hyperlipidemia. However, for many of those who undergo this training, there is no job waiting which would enable them to implement their expertise in a practice setting. As stated earlier, education alone will not solve the problem of inadequate service delivery in hospital or ambulatory care settings. Organizational issues such as staffing and reimbursement have to be resolved before the nurses' special training can be harnessed to affect clinical delivery of preventive services.

Nursing standards/clinical guidelines. Organizations such as the American Nurses Association have long been involved in defining the scope of nursing practice, through the development of standards and clinical guidelines. While these standards have been well delineated for such areas as critical care, medical/surgical nursing and recently cardiac rehabilitation (43), nursing standards and guidelines for risk factor modification have not yet been defined. The reluctance of organizations such as the American Nurses Association to develop sufficiently effective and broad-based guidelines that ensure the delivery of risk factor modification is most likely due to a lack of defined role and reimbursement for nurses to perform these services. The problems of implementing clinical guidelines are also very similar to those for physicians. These include the following: 1) Guidelines are by necessity general, whereas the needs of the patients are highly specific; 2) a large amount of time is required to develop consensus guidelines that quickly become outmoded, and which may be difficult to assess in a clinical setting; 3) although nurses are able to implement
directives and management protocols, they, like physicians, want autonomy to carry out their roles.

**Supportive educational materials.** Educational materials have been developed by numerous organizations, such as the National Heart, Lung, and Blood Institute and the American Heart Association, to help health care professionals in the areas of risk factor modification. While training materials or direct education pamphlets or brochures increase knowledge and promote awareness for both the health care professional and the patient, to be effective they must have a behavioral basis. Most of these materials have not incorporated self-efficacy theory, targeted goals and feedback (44), nor have they taken into account the educational and cultural background of the health care professional or the patient. Many hospitals have developed “home-grown” materials, believing that available materials did not suit their patient population. Merely keeping track of these materials and making them available to all patients is often taxing. Large demand for high quality education materials would spur commercial development, but to date this demand appears to be modest.

**Nurse case-management programs.** Nurse case-management programs have begun to address the organizational and staffing barriers to implementation of preventive services noted earlier. These programs have generally been implemented in the managed care setting, which provides the proper incentives to program implementation. However, even in a managed care setting, the widespread dissemination of these programs ultimately depends on financial considerations, including the short-term costs incurred in the first few months to years of implementation. Some managed care organizations remain unaware or unconvinced of these programs' benefits, and are not willing to bear these costs. Moreover, this problem is exacerbated by the tendency of patients to leave managed care plans before the investment in their health care can be recouped.

Case-management systems for risk factor modification are not only more efficacious, but are generally more cost-effective than physician-mediated risk factor modification. This greater cost-effectiveness is due to the lower salaries of nurses, but in addition, some systems rely more heavily on phone and mail contact than face-to-face visits. Nurses, therefore, can be hired and trained to devote themselves to this one activity, whereas physicians attempt to devote themselves to a broad range of activities, only some of which concern risk factor modification. The same elements of case management that contribute to cost-effectiveness also contribute to convenience for patients and increased patient satisfaction.

Managing cardiovascular risk factors is a complex, multifactorial process. It involves not only educating patients and helping them develop skills to change and maintain multiple health behaviors, but also increasing their adherence to medication regimens and teaching them to initiate appropriate action in response to the development of drug side effects or worsening of cardiac symptoms. Nurses have shown considerable expertise in facilitating long-term monitoring of hypertension (45), diabetes (46), smoking cessation (47) and lipid-lowering drug therapy (48). Moreover, when a nurse case-management approach has been applied to patients recovering from myocardial infarction, nurses have shown a high degree of efficacy in managing multiple risk factors (49). This case-management system documented a reduction in plasma low density lipoprotein (LDL) cholesterol among post-myocardial infarction patients to 107 mg/dl, which is close to the benchmark value established for regression of atherosclerotic lesions and a reduction of clinical events (1).

What accounts for the efficacy of case management for coronary risk factor modification and coronary disease risk management? Whether managing diabetes or hypertension, which predispose the patient to coronary artery disease, or managing multiple risk factors, nurses achieve three important objectives: 1) increasing patients' adherence to drug and diet regimens; 2) instructing patients in self-monitoring of weight, blood pressure, symptoms, blood glucose or smoking relapse; and 3) teaching patients to take appropriate action in response to new or worsening symptoms. The system for coronary risk factor modification can also be well integrated into the usual care provided to patients. It uses existing facilities (e.g., hospital wards or outpatient clinics) for a baseline visit and convenient channels of communication (e.g., the telephone and mail) for follow-up of patients. Nurse case managers' telephone contacts with patients provide an important measure of surveillance, instruction and support. Primary care physicians can also be kept abreast of their patients' medical conditions by phone and mail. In addition, standardized algorithms and the use of a computerized data base facilitate data management and assist nurses in medical decision making. Use of such a system contributes to the standardization of care and the assessment of quality. Nurse case-management systems appear to have particularly great appeal, in as much as they are well integrated into the medical care system, offer a measure of patient surveillance and a high degree of satisfaction and result in significant cost savings.

**Interventions in Health Care Institutions (Hospitals, Clinics, Practices)**

**Centralized identification of patients by laboratories, clinical units and pharmacies.** Various forms of cues or reminders have been used to identify patients in need of preventive services. These cues have ranged from chart-attached reminders and nurse-prepared checklists to computer prompts. Obscuring abnormal laboratory data on laboratory reports of inpatients with fluorescent tape improves physician attention to the abnormal values (50). Cholesterol values identified as abnormal by the laboratory computer were more likely to lead to follow-up treatment than those values not described as abnormal (51). Reminder checklists affixed to outpatient records prompted increased preventive care (52,53). McDonald (54) used computer-generated preventive care reminders, showing that preventive services of 126 physicians were 20% higher when cued. Similarly, nurse-generated checklists led to a 17% to 22% increase in preventive services (55-57).
considerably more effective than the usual medical care for maintenance organization, this case-management system was ment intervention. They concluded that in the large health coronary risk factors after myocardial infarction using specially demonstrated substantial improvements in modification of diet-drug therapy for hyperlipidemia in the hospital. After trained nurses to initiate smoking cessation, exercise training and risk factor modification guidelines. DeBusk et al. (49) have case-management team approach in the implementation of performance rate with guidelines after 4 years was no better than 70%, suggesting the need for additional strategies. There is now a growing appreciation for the impact of the physician-nurse care-management team approach in the implementation of risk factor modification guidelines. DeBusk et al. (49) have demonstrated substantial improvements in modification of coronary risk factors after myocardial infarction using specially trained nurses to initiate smoking cessation, exercise training and diet-drug therapy for hyperlipidemia in the hospital. After discharge, telephone and mail contact were utilized to implement intervention. They concluded that in the large health maintenance organization, this case-management system was considerably more effective than the usual medical care for modification of risk factors after myocardial infarction. In some current managed care organizations or those using capitated care, a team approach with care provided by a nonphysician provider may allow for additional visits than those allowed under other reimbursement systems.

**Interventions in Health Care Systems and Third-Party Payors**

**Quality assurance programs and standards.** Quality assurance is defined as “the measurement of the actual level of quality of services rendered, plus the efforts to modify when necessary the provision of these services in the light of the results of the measurement” (51). Quality assurance programs are readily applicable to primary and secondary preventive care programs and may have three phases (61): 1) Explicit acute and preventive care criteria are based on results of epidemiologic research and controlled clinical trials. To date, these criteria for risk factor management have not been finalized. 2) Clinical researchers document the levels of performance of practitioners concerning levels of care, often identifying them as deficient (62) (Table 1). 3) The research then seeks to examine barriers to the implementation of the care standards (see Barriers to Implementation of Preventive Services: An Overview). An essential component of the quality assurance program is the feedback loop (63). This can take several forms, as noted previously, and can be tied to a variety of incentives, including financial rewards, credentialing or accreditation. One recently popular performance report on quality is the Report Card, such as that proposed by the Health Plan Employer Data and Information Set (HEDIS), for use by employers to evaluate and select managed care organizations (64). More specific performance reports include risk-adjusted mortality rates for coronary artery bypass by hospitals and surgeons in New York State, as published in the lay press (65). Quality assurance reports are acknowledged to have a number of drawbacks (64,66), but will most likely continue to provide motivations to health care systems to self-examine their performance.

**Reimbursement policies.** Reimbursement schedules appear to influence work performance, especially in practicing physicians (67). Preventive services in inpatient and ambulatory care settings have frequently not been reimbursed, providing a major disincentive to providers and patients alike (11,68). As noted previously, inconsistent or absent reimbursement policies results in allocation of time, space, personnel and supplies directed away from preventive efforts toward acute care services.

**Legislation and regulations.** Efforts to regulate or legislate health care have had mixed results, but provide the potential for maintenance of certain levels of quality of care (64). One example is the New York State Hospital-Based Coronary Prevention Program. As part of a Certificate of Need application for initiation or expansion of cardiac surgical or invasive cardiologic services, hospitals in New York State are required to submit a preventive cardiology plan for risk factor identifi-
cation and management in patients with coronary disease and their first-degree relatives, a heart disease prevention program for employees and involvement in community-based heart health programs. This program then ties risk reduction efforts to the ability to acquire additional acute care services, as an example of regulations which might encourage appropriate use of preventive services. Additional regulations in the areas of quality assurance, reimbursement and credentialing may also foster improved levels of care.

Recommendations

The overall recommendation of this task force and, indeed, this Bethesda Conference is that appropriate risk factor management is a key part of the optimal care of the patient with established cardiovascular disease or the patient with high risk of developing the disease. Additional, more specific recommendations have been proposed as solutions to specific problems identified in the organization of risk factor management services. They are as follows:

1. Consensus statements, clinical guidelines and standards of care for preventive cardiology should be developed for use by practitioners and health care organizations by the American College of Cardiology in collaboration with other organizations involved with ensuring the quality of care for cardiovascular disease. Examples include guidelines on hypertension management by the Joint National Committee Fifth Report (69), the National Cholesterol Education Program’s Adult Treatment Panel Report (70) and the Guidelines on Cardiac Rehabilitation of the Agency for Health Care Policy Research (71).

2. Research to identify, quantify and overcome the various barriers to implementation of clinical guidelines should be performed.

3. Lack of reimbursement or coverage for preventive cardiology services has been a disincentive to optimal risk factor management. Efficacious preventive cardiology services are those which should be reimbursed or covered, including care by nonphysician providers.

4. Physician and nurse education programs should emphasize clinically relevant material focusing on consensus statements or clinical guidelines, or both, taking into consideration the needs of specific target audiences. Clear learning objectives, targeting clinical performance rather than knowledge, need to be established for implementation in clinical settings, utilizing some form of feedback and positive performance evaluation.

5. Health care organizations should set goals for implementation of proven strategies for heart disease prevention, including the formation of alliances between reimbursement agencies, specialists and primary care providers.

6. Preventive cardiology programs have been developed and shown to be effective in practices, hospitals and managed care organizations. These programs should be modified, implemented and evaluated to meet patient and organizational needs at a local level. These programs may benefit from the

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<thead>
<tr>
<th>Table 3. Key Measures for Quality of Preventive Care*</th>
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<tr>
<td>1. Smoking status should be documented in all patients with coronary or other vascular disease</td>
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<tr>
<td>2. Organizations should have a smoking cessation program available for the smoking patient and his or her family</td>
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<tr>
<td>3. All eligible patients hospitalized with coronary or other vascular disease should have documented the offer of physician advice and self-help materials to stop smoking</td>
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<td>4. All patients with coronary or other vascular disease should have a fasting lipoprotein profile documented at the appropriate time within the first 3 months after onset of disease, if the patient is deemed appropriate for diet or pharmacologic intervention</td>
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<td>5. All patients with coronary or other vascular disease should be offered, as documented in the medical record, nutritional evaluation and counseling at the time of diagnosis</td>
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<tr>
<td>6. All patients with coronary or other vascular disease who have an LDL cholesterol level &gt;130 mg/dl after nutritional therapy should be prescribed, as documented in the record, lipid-lowering pharmacologic therapy, if the patient is deemed appropriate for intervention</td>
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<tr>
<td>7. All patients with coronary or other vascular disease should be assessed and provided with exercise counseling/ prescription at the time of diagnosis, if the patient is deemed appropriate for intervention</td>
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<td>8. Aspirin therapy should be offered to all patients eligible at the time of diagnosis of coronary or other atherosclerotic disease. If aspirin therapy is not indicated, the contraindication should be documented in the medical record</td>
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<td>9. All patients with coronary or other vascular disease should have a blood pressure measurement documented at every visit</td>
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<tr>
<td>10. If an average of three blood pressure measurements is equal to or greater than 140 mm Hg diastolic or 90 mm Hg systolic, life-style and pharmacologic therapy treatment plans should be offered and documented at the time of diagnosis</td>
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*The risk reduction strategies as endorsed by the American Heart Association and American College of Cardiology should be implemented in patients with established cardiovascular disease. Some of these strategies can then be used to create key measures of risk factor management to monitor quality of care.

utilization of nonphysician health professionals to provide risk evaluation, intervention and follow-up.

7. Quality assurance programs should include risk factor management as key indicators of quality of care. A list of 10 key indicators is proposed next as a starting point, recognizing that the list may evolve as new risk factors are established, as the effectiveness of new interventions becomes proven and as new methods to measure levels of risk factor management become implemented (Table 3).

8. Reliable mechanisms to monitor the level to which clinical guidelines, practice standards and other goals in preventive cardiology are being carried out should be developed and implemented.

References


3. Cohen MV, Byrne MJ, Levine B, Gutowski T, Adeleon R. Low rate of